

# SEQUENCE LISTING

<110> Batard, Yannick  
Durst, Francis  
Schalk, Michel  
Werck-Reichhart, Daniele

<120> RECODING OF DNA SEQUENCES PERMITTING  
EXPRESSION IN YEAST AND OBTAINED TRANSFORMED YEAST

<130> A32000

<140> 09/158,767

<141> 1998-09-23

<150> FR 97-12094

<151> 1997-09-24

<160> 20

<170> FastSEQ for Windows Version 3.0

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<213> Artificial Sequence

<220>

<223> Synthetic primer

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<213> Artificial Sequence

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<223> Altered sequences

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<220>

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ccctccgtcc	ccgaggactc	caagcacgtc	gtcgcgagcg	actacctccc	cgacggcacc	1200
ttcgtgccgg	ccgggtcgct	ggtcacctac	tccatatact	cggcggggcg	catgaagggg	1260
gtgtgggggg	aggactgcct	cgagttccgg	ccggagcgat	ggctgtcggc	cgacggcacc	1320
aagtctcgagc	agcacgactc	gtacaagtgc	gtggcggttc	acgccggggc	gaggggtgtg	1380
ctgggcaagg	acctagccta	cctgcagatg	aagaacatcg	ccgggagcgt	gctgctccgg	1440
caccgcctga	ccgtggcgcc	gggccaccgc	gtggagcaga	agatgtcgct	cacgctcttc	1500
atgaagggcg	ggctacggat	ggaggtacgt	ccgcgcgacc	tcgcccccg	cctcgacgag	1560
ccctgcggcc	tggacgccgg	cgccgccacc	gccgcgcgag	caagtgccac	agcgccgtgc	1620
gcgtag						1626

<210> 15  
 <211> 501  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Altered sequences

<400> 15



Met	Asp	Val	Leu	Leu	Leu	Glu	Lys	Ala	Leu	Leu	Gly	Leu	Phe	Ala	Ala
1				5					10					15	
Ala	Val	Leu	Ala	Ile	Ala	Val	Ala	Lys	Leu	Thr	Gly	Lys	Arg	Phe	Arg
		20						25					30		
Leu	Pro	Pro	Gly	Pro	Ser	Gly	Ala	Pro	Ile	Val	Gly	Asn	Trp	Leu	Gln
		35					40					45			
Val	Gly	Asp	Asp	Leu	Asn	His	Arg	Asn	Leu	Met	Gly	Leu	Ala	Lys	Arg
	50					55					60				
Phe	Gly	Glu	Val	Phe	Leu	Leu	Arg	Met	Gly	Val	Arg	Asn	Leu	Val	Val
65					70					75					80
Val	Ser	Ser	Pro	Glu	Leu	Ala	Lys	Glu	Val	Leu	His	Thr	Gln	Gly	Val
			85						90					95	
Glu	Phe	Gly	Ser	Arg	Thr	Arg	Asn	Val	Val	Phe	Asp	Ile	Phe	Thr	Gly
			100					105					110		
Lys	Gly	Gln	Asp	Met	Val	Phe	Thr	Val	Tyr	Gly	Asp	His	Trp	Arg	Lys
		115					120					125			
Met	Arg	Arg	Ile	Met	Thr	Val	Pro	Phe	Phe	Thr	Asn	Lys	Val	Val	Ala
	130					135					140				
Gln	Asn	Arg	Val	Gly	Trp	Glu	Glu	Glu	Ala	Arg	Leu	Val	Val	Glu	Asp
145					150					155					160
Leu	Lys	Ala	Asp	Pro	Ala	Ala	Ala	Thr	Ala	Gly	Val	Val	Val	Arg	Arg
			165						170					175	
Arg	Leu	Gln	Leu	Met	Met	Tyr	Asn	Asp	Met	Phe	Arg	Ile	Met	Phe	Asp
			180					185					190		
Arg	Arg	Phe	Glu	Ser	Val	Ala	Asp	Pro	Leu	Phe	Asn	Gln	Leu	Lys	Ala
		195					200					205			
Leu	Asn	Ala	Glu	Arg	Ser	Ile	Leu	Ser	Gln	Ser	Phe	Asp	Tyr	Asn	Tyr
	210					215					220				
Gly	Asp	Phe	Ile	Pro	Val	Leu	Arg	Pro	Phe	Leu	Arg	Arg	Tyr	Leu	Asn
225					230					235					240
Arg	Cys	Thr	Asn	Leu	Lys	Thr	Lys	Arg	Met	Lys	Val	Phe	Glu	Asp	His
			245						250					255	
Phe	Val	Gln	Gln	Arg	Lys	Glu	Ala	Leu	Glu	Lys	Thr	Gly	Glu	Ile	Arg
			260					265					270		
Cys	Ala	Met	Asp	His	Ile	Leu	Glu	Ala	Glu	Arg	Lys	Gly	Glu	Ile	Asn
		275					280					285			
His	Asp	Asn	Val	Leu	Tyr	Ile	Val	Glu	Asn	Ile	Asn	Val	Ala	Ala	Ile
	290					295					300				
Glu	Thr	Thr	Leu	Trp	Ser	Ile	Glu	Trp	Gly	Leu	Ala	Glu	Leu	Val	Asn
305					310					315					320
His	Pro	Glu	Ile	Gln	Gln	Lys	Leu	Arg	Glu	Glu	Ile	Val	Ala	Val	Leu
			325						330					335	
Gly	Ala	Gly	Val	Ala	Val	Thr	Glu	Pro	Asp	Leu	Glu	Arg	Leu	Pro	Tyr

340

345

350

Leu Gln Ser Val Val Lys Glu Thr Leu Arg Leu Arg Met Ala Ile Pro  
 355 360 365  
 Leu Leu Val Pro His Met Asn Leu Ser Asp Ala Lys Leu Ala Gly Tyr  
 370 375 380  
 Asp Ile Pro Ala Glu Ser Lys Ile Leu Val Asn Ala Trp Phe Leu Ala  
 385 390 395 400  
 Asn Asp Pro Lys Arg Trp Val Arg Ala Asp Glu Phe Arg Pro Glu Arg  
 405 410 415  
 Phe Leu Glu Glu Glu Lys Ala Val Glu Ala His Gly Asn Asp Phe Arg  
 420 425 430  
 Phe Val Pro Phe Gly Val Gly Arg Arg Ser Cys Pro Gly Ile Ile Leu  
 435 440 445  
 Ala Leu Pro Ile Ile Gly Ile Thr Leu Gly Arg Leu Val Gln Asn Phe  
 450 455 460  
 Gln Leu Leu Pro Pro Pro Gly Gln Asp Lys Ile Asp Thr Thr Glu Lys  
 465 470 475 480  
 Pro Gly Gln Phe Thr Asn Gln Ile Leu Lys His Ala Thr Ile Val Cys  
 485 490 495  
 Lys Pro Leu Glu Ala  
 500

<210> 16  
 <211> 501  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Altered sequences

<400> 16

Met Asp Val Leu Leu Leu Glu Lys Ala Leu Leu Gly Leu Phe Ala Ala  
 1 5 10 15  
 Ala Val Leu Ala Ile Ala Val Ala Lys Leu Thr Gly Lys Arg Phe Arg  
 20 25 30  
 Leu Pro Pro Gly Pro Ser Gly Ala Pro Ile Val Gly Asn Trp Leu Gln  
 35 40 45  
 Val Gly Asp Asp Leu Asn His Arg Asn Leu Met Gly Leu Ala Lys Arg  
 50 55 60  
 Phe Gly Glu Val Phe Leu Leu Arg Met Gly Val Arg Asn Leu Val Val  
 65 70 75 80  
 Val Ser Ser Pro Glu Leu Ala Lys Glu Val Leu His Thr Gln Gly Val  
 85 90 95  
 Glu Phe Gly Ser Arg Thr Arg Asn Val Val Phe Asp Ile Phe Thr Gly  
 100 105 110  
 Lys Gly Gln Asp Met Val Phe Thr Val Tyr Gly Asp His Trp Arg Lys

115	120	125
Met Arg Arg Ile Met Thr Val	Pro Phe Phe Thr Asn Lys Val Val Ala	
130	135	140
Gln Asn Arg Val Gly Trp Glu Glu Glu Ala Arg Leu Val Val Glu Asp		
145	150	155
Leu Lys Ala Asp Pro Ala Ala Ala Thr Ala Gly Val Val Val Arg Arg		160
165	170	175
Arg Leu Gln Leu Met Met Tyr Asn Asp Met Phe Arg Ile Met Phe Asp		
180	185	190
Arg Arg Phe Glu Ser Val Ala Asp Pro Leu Phe Asn Gln Leu Lys Ala		
195	200	205
Leu Asn Ala Glu Arg Ser Ile Leu Ser Gln Ser Phe Asp Tyr Asn Tyr		
210	215	220
Gly Asp Phe Ile Pro Val Leu Arg Pro Phe Leu Arg Arg Tyr Leu Asn		
225	230	235
Arg Cys Thr Asn Leu Lys Thr Lys Arg Met Lys Val Phe Glu Asp His		
245	250	255
Phe Val Gln Gln Arg Lys Glu Ala Leu Glu Lys Thr Gly Glu Ile Arg		
260	265	270
Cys Ala Met Asp His Ile Leu Glu Ala Glu Arg Lys Gly Glu Ile Asn		
275	280	285
His Asp Asn Val Leu Tyr Ile Val Glu Asn Ile Asn Val Ala Ala Ile		
290	295	300
Glu Thr Thr Leu Trp Ser Ile Glu Trp Gly Leu Ala Glu Leu Val Asn		
305	310	315
His Pro Glu Ile Gln Gln Lys Leu Arg Glu Glu Ile Val Ala Val Leu		
325	330	335
Gly Ala Gly Val Ala Val Thr Glu Pro Asp Leu Glu Arg Leu Pro Tyr		
340	345	350
Leu Gln Ser Val Val Lys Glu Thr Leu Arg Leu Arg Met Ala Ile Pro		
355	360	365
Leu Leu Val Pro His Met Asn Leu Ser Asp Ala Lys Leu Ala Gly Tyr		
370	375	380
Asp Ile Pro Ala Glu Ser Lys Ile Leu Val Asn Ala Trp Phe Leu Ala		
385	390	395
Asn Asp Pro Lys Arg Trp Val Arg Ala Asp Glu Phe Arg Pro Glu Arg		
405	410	415
Phe Leu Glu Glu Glu Lys Ala Val Glu Ala His Gly Asn Asp Phe Arg		
420	425	430
Phe Val Pro Phe Gly Val Gly Arg Ser Cys Pro Gly Ile Ile Leu		
435	440	445
Ala Leu Pro Ile Ile Gly Ile Thr Leu Gly Arg Leu Val Gln Asn Phe		
450	455	460
Gln Leu Leu Pro Pro Pro Gly Gln Asp Lys Ile Asp Thr Thr Glu Lys		
465	470	475
		480

Pro Gly Gln Phe Thr Asn Gln Ile Leu Lys His Ala Thr Ile Val Cys  
 485 490 495  
 Lys Pro Leu Glu Ala  
 500

<210> 17  
 <211> 501  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Altered sequences

<400> 17

Met	Asp	Val	Leu	Leu	Leu	Glu	Lys	Ala	Leu	Leu	Gly	Leu	Phe	Ala	Ala
			5						10					15	
Ala	Val	Leu	Ala	Ile	Ala	Val	Ala	Lys	Leu	Thr	Gly	Lys	Arg	Phe	Arg
			20					25					30		
Leu	Pro	Pro	Gly	Pro	Ser	Gly	Ala	Pro	Ile	Val	Gly	Asn	Trp	Leu	Gln
			35				40					45			
Val	Gly	Asp	Asp	Leu	Asn	His	Arg	Asn	Leu	Met	Gly	Leu	Ala	Lys	Arg
			50			55					60				
Phe	Gly	Glu	Val	Phe	Leu	Leu	Arg	Met	Gly	Val	Arg	Asn	Leu	Val	Val
					70					75				80	
Val	Ser	Ser	Pro	Glu	Leu	Ala	Lys	Glu	Val	Leu	His	Thr	Gln	Gly	Val
				85				90					95		
Glu	Phe	Gly	Ser	Arg	Thr	Arg	Asn	Val	Val	Phe	Asp	Ile	Phe	Thr	Gly
			100					105					110		
Lys	Gly	Gln	Asp	Met	Val	Phe	Thr	Val	Tyr	Gly	Asp	His	Trp	Arg	Lys
			115				120					125			
Met	Arg	Arg	Ile	Met	Thr	Val	Pro	Phe	Phe	Thr	Asn	Lys	Val	Val	Ala
			130			135					140				
Gln	Asn	Arg	Val	Gly	Trp	Glu	Glu	Glu	Ala	Arg	Leu	Val	Val	Glu	Asp
				145		150				155				160	
Leu	Lys	Ala	Asp	Pro	Ala	Ala	Ala	Thr	Ala	Gly	Val	Val	Val	Arg	Arg
				165				170						175	
Arg	Leu	Gln	Leu	Met	Met	Tyr	Asn	Asp	Met	Phe	Arg	Ile	Met	Phe	Asp
			180					185					190		
Arg	Arg	Phe	Glu	Ser	Val	Ala	Asp	Pro	Leu	Phe	Asn	Gln	Leu	Lys	Ala
			195				200					205			
Leu	Asn	Ala	Glu	Arg	Ser	Ile	Leu	Ser	Gln	Ser	Phe	Asp	Tyr	Asn	Tyr
			210			215					220				
Gly	Asp	Phe	Ile	Pro	Val	Leu	Arg	Pro	Phe	Leu	Arg	Arg	Tyr	Leu	Asn
				225		230				235				240	
Arg	Cys	Thr	Asn	Leu	Lys	Thr	Lys	Arg	Met	Lys	Val	Phe	Glu	Asp	His

				245					250					255					
Phe	Val	Gln	Gln	Arg	Lys	Glu	Ala	Leu	Glu	Lys	Thr	Gly	Glu	Ile	Arg				
			260					265					270						
Cys	Ala	Met	Asp	His	Ile	Leu	Glu	Ala	Glu	Arg	Lys	Gly	Glu	Ile	Asn				
		275					280					285							
His	Asp	Asn	Val	Leu	Tyr	Ile	Val	Glu	Asn	Ile	Asn	Val	Ala	Ala	Ile				
	290					295					300								
Glu	Thr	Thr	Leu	Trp	Ser	Ile	Glu	Trp	Gly	Leu	Ala	Glu	Leu	Val	Asn				
305					310					315					320				
His	Pro	Glu	Ile	Gln	Gln	Lys	Leu	Arg	Glu	Glu	Ile	Val	Ala	Val	Leu				
			325					330					335						
Gly	Ala	Gly	Val	Ala	Val	Thr	Glu	Pro	Asp	Leu	Glu	Arg	Leu	Pro	Tyr				
		340					345					350							
Leu	Gln	Ser	Val	Val	Lys	Glu	Thr	Leu	Arg	Leu	Arg	Met	Ala	Ile	Pro				
	355					360					365								
Leu	Leu	Val	Pro	His	Met	Asn	Leu	Ser	Asp	Ala	Lys	Leu	Ala	Gly	Tyr				
	370				375				380										
Asp	Ile	Pro	Ala	Glu	Ser	Lys	Ile	Leu	Val	Asn	Ala	Trp	Phe	Leu	Ala				
385					390				395						400				
Asn	Asp	Pro	Lys	Arg	Trp	Val	Arg	Ala	Asp	Glu	Phe	Arg	Pro	Glu	Arg				
			405				410					415							
Phe	Leu	Glu	Glu	Glu	Lys	Ala	Val	Glu	Ala	His	Gly	Asn	Asp	Phe	Arg				
		420					425					430							
Phe	Val	Pro	Phe	Gly	Val	Gly	Arg	Arg	Ser	Cys	Pro	Gly	Ile	Ile	Leu				
	435					440					445								
Ala	Leu	Pro	Ile	Ile	Gly	Ile	Thr	Leu	Gly	Arg	Leu	Val	Gln	Asn	Phe				
	450				455				460										
Gln	Leu	Leu	Pro	Pro	Pro	Gly	Gln	Asp	Lys	Ile	Asp	Thr	Thr	Glu	Lys				
465				470				475						480					
Pro	Gly	Gln	Phe	Thr	Asn	Gln	Ile	Leu	Lys	His	Ala	Thr	Ile	Val	Cys				
		485					490					495							
Lys	Pro	Leu	Glu	Ala															
		500																	

<210> 18  
 <211> 501  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Altered sequences

<400> 18

Met	Asp	Val	Leu	Leu	Leu	Glu	Lys	Ala	Leu	Leu	Gly	Leu	Phe	Ala	Ala
1			5						10					15	

Ala	Val	Leu	Ala	Ile	Ala	Val	Ala	Lys	Leu	Thr	Gly	Lys	Arg	Phe	Arg
			20					25					30		
Leu	Pro	Pro	Gly	Pro	Ser	Gly	Ala	Pro	Ile	Val	Gly	Asn	Trp	Leu	Gln
		35					40					45			
Val	Gly	Asp	Asp	Leu	Asn	His	Arg	Asn	Leu	Met	Gly	Leu	Ala	Lys	Arg
	50					55					60				
Phe	Gly	Glu	Val	Phe	Leu	Leu	Arg	Met	Gly	Val	Arg	Asn	Leu	Val	Val
65					70					75					80
Val	Ser	Ser	Pro	Glu	Leu	Ala	Lys	Glu	Val	Leu	His	Thr	Gln	Gly	Val
				85					90					95	
Glu	Phe	Gly	Ser	Arg	Thr	Arg	Asn	Val	Val	Phe	Asp	Ile	Phe	Thr	Gly
			100				105						110		
Lys	Gly	Gln	Asp	Met	Val	Phe	Thr	Val	Tyr	Gly	Asp	His	Trp	Arg	Lys
		115					120					125			
Met	Arg	Arg	Ile	Met	Thr	Val	Pro	Phe	Phe	Thr	Asn	Lys	Val	Val	Ala
	130					135					140				
Gln	Asn	Arg	Val	Gly	Trp	Glu	Glu	Glu	Ala	Arg	Leu	Val	Val	Glu	Asp
145					150					155					160
Leu	Lys	Ala	Asp	Pro	Ala	Ala	Ala	Thr	Ala	Gly	Val	Val	Val	Arg	Arg
				165					170					175	
Arg	Leu	Gln	Leu	Met	Met	Tyr	Asn	Asp	Met	Phe	Arg	Ile	Met	Phe	Asp
			180					185					190		
Arg	Arg	Phe	Glu	Ser	Val	Ala	Asp	Pro	Leu	Phe	Asn	Gln	Leu	Lys	Ala
		195					200					205			
Leu	Asn	Ala	Glu	Arg	Ser	Ile	Leu	Ser	Gln	Ser	Phe	Asp	Tyr	Asn	Tyr
	210					215					220				
Gly	Asp	Phe	Ile	Pro	Val	Leu	Arg	Pro	Phe	Leu	Arg	Arg	Tyr	Leu	Asn
225					230					235					240
Arg	Cys	Thr	Asn	Leu	Lys	Thr	Lys	Arg	Met	Lys	Val	Phe	Glu	Asp	His
			245					250					255		
Phe	Val	Gln	Gln	Arg	Lys	Glu	Ala	Leu	Glu	Lys	Thr	Gly	Glu	Ile	Arg
			260				265					270			
Cys	Ala	Met	Asp	His	Ile	Leu	Glu	Ala	Glu	Arg	Lys	Gly	Glu	Ile	Asn
		275					280					285			
His	Asp	Asn	Val	Leu	Tyr	Ile	Val	Glu	Asn	Ile	Asn	Val	Ala	Ala	Ile
	290					295					300				
Glu	Thr	Thr	Leu	Trp	Ser	Ile	Glu	Trp	Gly	Leu	Ala	Glu	Leu	Val	Asn
305					310					315					320
His	Pro	Glu	Ile	Gln	Gln	Lys	Leu	Arg	Glu	Glu	Ile	Val	Ala	Val	Leu
				325					330					335	
Gly	Ala	Gly	Val	Ala	Val	Thr	Glu	Pro	Asp	Leu	Glu	Arg	Leu	Pro	Tyr
			340				345					350			
Leu	Gln	Ser	Val	Val	Lys	Glu	Thr	Leu	Arg	Leu	Arg	Met	Ala	Ile	Pro
		355					360					365			
Leu	Leu	Val	Pro	His	Met	Asn	Leu	Ser	Asp	Ala	Lys	Leu	Ala	Gly	Tyr

370	375	380
Asp Ile Pro Ala Glu Ser Lys Ile Leu Val	Asn Ala Trp Phe Leu Ala	
385	390	395
Asn Asp Pro Lys Arg Trp Val Arg Ala Asp	Glu Phe Arg Pro Glu Arg	400
	405	410
Phe Leu Glu Glu Glu Lys Ala Val Glu Ala	His Gly Asn Asp Phe Arg	415
	420	425
Phe Val Pro Phe Gly Val Gly Arg Arg Ser	Cys Pro Gly Ile Ile Leu	
	435	440
Ala Leu Pro Ile Ile Gly Ile Thr Leu Gly	Arg Leu Val Gln Asn Phe	
	450	455
Gln Leu Leu Pro Pro Pro Gly Gln Asp Lys	Ile Asp Thr Thr Glu Lys	
465	470	475
Pro Gly Gln Phe Thr Asn Gln Ile Leu Lys	His Ala Thr Ile Val Cys	
	485	490
Lys Pro Leu Glu Ala		495
	500	

<210> 19  
 <211> 541  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Altered sequences

<400> 19

Met Glu Val Gly Thr Trp Ala Val Val Val Ser Ala Val Ala Ala Tyr	
1	5 10 15
Met Ala Trp Phe Trp Arg Met Ser Arg Gly Leu Arg Gly Pro Arg Val	
	20 25 30
Trp Pro Val Leu Gly Ser Leu Pro Gly Leu Val Gln His Ala Glu Asp	
	35 40 45
Met His Glu Trp Ile Ala Gly Asn Leu Arg Arg Ala Gly Gly Thr Tyr	
	50 55 60
Gln Thr Cys Ile Phe Ala Val Pro Gly Val Ala Arg Arg Gly Gly Leu	
65	70 75 80
Val Thr Val Thr Cys Asp Pro Arg Asn Leu Glu His Val Leu Lys Ala	
	85 90 95
Arg Phe Asp Asn Tyr Pro Lys Gly Pro Phe Trp His Gly Val Phe Arg	
	100 105 110
Asp Leu Leu Gly Asp Gly Ile Phe Asn Ser Asp Gly Asp Thr Trp Leu	
	115 120 125
Ala Gln Arg Lys Thr Ala Ala Leu Glu Phe Thr Thr Arg Thr Leu Arg	
130	135 140

Thr	Ala	Met	Ser	Arg	Trp	Val	Ser	Arg	Ser	Ile	His	Gly	Arg	Leu	Leu
145					150					155					160
Pro	Ile	Leu	Ala	Asp	Ala	Ala	Lys	Gly	Lys	Ala	Gln	Val	Asp	Leu	Gln
				165					170					175	
Asp	Leu	Leu	Leu	Arg	Leu	Thr	Phe	Asp	Asn	Ile	Cys	Gly	Leu	Ala	Phe
				180				185					190		
Gly	Lys	Asp	Pro	Glu	Thr	Leu	Ala	Gln	Gly	Leu	Pro	Glu	Asn	Glu	Phe
		195					200					205			
Ala	Ser	Ala	Phe	Asp	Arg	Ala	Thr	Glu	Ala	Thr	Leu	Asn	Arg	Phe	Ile
	210					215					220				
Phe	Pro	Glu	Phe	Leu	Trp	Arg	Cys	Lys	Lys	Trp	Leu	Gly	Leu	Gly	Met
225					230					235					240
Glu	Thr	Thr	Leu	Thr	Ser	Ser	Met	Ala	His	Val	Asp	Gln	Tyr	Leu	Ala
				245					250					255	
Ala	Val	Ile	Lys	Lys	Arg	Lys	Leu	Glu	Leu	Ala	Ala	Gly	Asn	Gly	Lys
			260					265					270		
Cys	Asp	Thr	Ala	Ala	Thr	His	Asp	Asp	Leu	Leu	Ser	Arg	Phe	Met	Arg
	275						280					285			
Lys	Gly	Ser	Tyr	Ser	Asp	Glu	Ser	Leu	Gln	His	Val	Ala	Leu	Asn	Phe
	290					295					300				
Phe	Leu	Ala	Gly	Arg	Asp	Thr	Ser	Ser	Val	Ala	Leu	Ser	Trp	Phe	Phe
305					310					315					320
Trp	Leu	Val	Ser	Thr	His	Pro	Ala	Val	Glu	Arg	Lys	Ile	Val	Arg	Glu
				325					330					335	
Leu	Cys	Ser	Val	Leu	Ala	Ala	Ser	Arg	Gly	Ala	His	Asp	Pro	Ala	Leu
			340					345					350		
Trp	Leu	Ala	Glu	Pro	Phe	Thr	Phe	Glu	Glu	Leu	Asp	Arg	Leu	Val	Tyr
	355						360					365			
Leu	Lys	Ala	Ala	Leu	Ser	Glu	Thr	Leu	Arg	Leu	Tyr	Pro	Ser	Val	Pro
	370					375					380				
Glu	Asp	Ser	Lys	His	Val	Val	Ala	Asp	Asp	Tyr	Leu	Pro	Asp	Gly	Thr
385					390					395					400
Phe	Val	Pro	Ala	Gly	Ser	Ser	Val	Thr	Tyr	Ser	Ile	Tyr	Ser	Ala	Gly
				405					410					415	
Arg	Met	Lys	Gly	Val	Trp	Gly	Glu	Asp	Cys	Leu	Glu	Phe	Arg	Pro	Glu
			420					425					430		
Arg	Trp	Leu	Ser	Ala	Asp	Gly	Thr	Lys	Phe	Glu	Gln	His	Asp	Ser	Tyr
	435						440					445			
Lys	Phe	Val	Ala	Phe	Asn	Ala	Gly	Pro	Arg	Val	Cys	Leu	Gly	Lys	Asp
	450					455					460				
Leu	Ala	Tyr	Leu	Gln	Met	Lys	Asn	Ile	Ala	Gly	Ser	Val	Leu	Leu	Arg
465					470					475					480
His	Arg	Leu	Thr	Val	Ala	Pro	Gly	His	Arg	Val	Glu	Gln	Lys	Met	Ser
				485					490					495	
Leu	Thr	Leu	Phe	Met	Lys	Gly	Gly	Leu	Arg	Met	Glu	Val	Arg	Pro	Arg



	500		505		510										
Asp	Leu	Ala	Pro	Val	Leu	Asp	Glu	Pro	Cys	Gly	Leu	Asp	Ala	Gly	Ala
	515						520					525			
Ala	Thr	Ala	Ala	Ala	Ala	Ser	Ala	Thr	Ala	Pro	Cys	Ala			
	530						535					540			

<210> 20  
 <211> 541  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Altered sequences

<400> 20

Met	Glu	Val	Gly	Thr	Trp	Ala	Val	Val	Val	Ser	Ala	Val	Ala	Ala	Tyr
				5					10					15	
Met	Ala	Trp	Phe	Trp	Arg	Met	Ser	Arg	Gly	Leu	Arg	Gly	Pro	Arg	Val
			20					25					30		
Trp	Pro	Val	Leu	Gly	Ser	Leu	Pro	Gly	Leu	Val	Gln	His	Ala	Glu	Asp
		35					40				45				
Met	His	Glu	Trp	Ile	Ala	Gly	Asn	Leu	Arg	Arg	Ala	Gly	Gly	Thr	Tyr
	50					55					60				
Gln	Thr	Cys	Ile	Phe	Ala	Val	Pro	Gly	Val	Ala	Arg	Arg	Gly	Gly	Leu
					70				75					80	
Val	Thr	Val	Thr	Cys	Asp	Pro	Arg	Asn	Leu	Glu	His	Val	Leu	Lys	Ala
				85					90					95	
Arg	Phe	Asp	Asn	Tyr	Pro	Lys	Gly	Pro	Phe	Trp	His	Gly	Val	Phe	Arg
			100					105					110		
Asp	Leu	Leu	Gly	Asp	Gly	Ile	Phe	Asn	Ser	Asp	Gly	Asp	Thr	Trp	Leu
		115					120					125			
Ala	Gln	Arg	Lys	Thr	Ala	Ala	Leu	Glu	Phe	Thr	Thr	Arg	Thr	Leu	Arg
		130				135						140			
Thr	Ala	Met	Ser	Arg	Trp	Val	Ser	Arg	Ser	Ile	His	Gly	Arg	Leu	Leu
		145				150				155					160
Pro	Ile	Leu	Ala	Asp	Ala	Ala	Lys	Gly	Lys	Ala	Gln	Val	Asp	Leu	Gln
				165					170					175	
Asp	Leu	Leu	Leu	Arg	Leu	Thr	Phe	Asp	Asn	Ile	Cys	Gly	Leu	Ala	Phe
			180					185					190		
Gly	Lys	Asp	Pro	Glu	Thr	Leu	Ala	Gln	Gly	Leu	Pro	Glu	Asn	Glu	Phe
		195					200					205			
Ala	Ser	Ala	Phe	Asp	Arg	Ala	Thr	Glu	Ala	Thr	Leu	Asn	Arg	Phe	Ile
		210				215						220			
Phe	Pro	Glu	Phe	Leu	Trp	Arg	Cys	Lys	Lys	Trp	Leu	Gly	Leu	Gly	Met
					230					235					240
225															

Glu	Thr	Thr	Leu	Thr	Ser	Ser	Met	Ala	His	Val	Asp	Gln	Tyr	Leu	Ala			
				245					250					255				
Ala	Val	Ile	Lys	Lys	Arg	Lys	Leu	Glu	Leu	Ala	Ala	Gly	Asn	Gly	Lys			
			260					265					270					
Cys	Asp	Thr	Ala	Ala	Thr	His	Asp	Asp	Leu	Leu	Ser	Arg	Phe	Met	Arg			
		275					280					285						
Lys	Gly	Ser	Tyr	Ser	Asp	Glu	Ser	Leu	Gln	His	Val	Ala	Leu	Asn	Phe			
	290					295					300							
Ile	Leu	Ala	Gly	Arg	Asp	Thr	Ser	Ser	Val	Ala	Leu	Ser	Trp	Phe	Phe			
305					310				315						320			
Trp	Leu	Val	Ser	Thr	His	Pro	Ala	Val	Glu	Arg	Lys	Ile	Val	Arg	Glu			
			325					330						335				
Leu	Cys	Ser	Val	Leu	Ala	Ala	Ser	Arg	Gly	Ala	His	Asp	Pro	Ala	Leu			
			340					345					350					
Trp	Leu	Ala	Glu	Pro	Phe	Thr	Phe	Glu	Glu	Leu	Asp	Arg	Leu	Val	Tyr			
			355				360					365						
Leu	Lys	Ala	Ala	Leu	Ser	Glu	Thr	Leu	Arg	Leu	Tyr	Pro	Ser	Val	Pro			
	370					375					380							
Glu	Asp	Ser	Lys	His	Val	Val	Ala	Asp	Asp	Tyr	Leu	Pro	Asp	Gly	Thr			
385					390					395					400			
Phe	Val	Pro	Ala	Gly	Ser	Ser	Val	Thr	Tyr	Ser	Ile	Tyr	Ser	Ala	Gly			
			405					410						415				
Arg	Met	Lys	Gly	Val	Trp	Gly	Glu	Asp	Cys	Leu	Glu	Phe	Arg	Pro	Glu			
			420					425					430					
Arg	Trp	Leu	Ser	Ala	Asp	Gly	Thr	Lys	Phe	Glu	Gln	His	Asp	Ser	Tyr			
		435				440						445						
Lys	Phe	Val	Ala	Phe	Asn	Ala	Gly	Pro	Arg	Val	Cys	Leu	Gly	Lys	Asp			
	450					455					460							
Leu	Ala	Tyr	Leu	Gln	Met	Lys	Asn	Ile	Ala	Gly	Ser	Val	Leu	Leu	Arg			
465					470					475					480			
His	Arg	Leu	Thr	Val	Ala	Pro	Gly	His	Arg	Val	Glu	Gln	Lys	Met	Ser			
			485					490						495				
Leu	Thr	Leu	Phe	Met	Lys	Gly	Gly	Leu	Arg	Met	Glu	Val	Arg	Pro	Arg			
			500					505					510					
Asp	Leu	Ala	Pro	Val	Leu	Asp	Glu	Pro	Cys	Gly	Leu	Asp	Ala	Gly	Ala			
		515					520					525						
Ala	Thr	Ala	Ala	Ala	Ala	Ser	Ala	Thr	Ala	Pro	Cys	Ala						
	530					535					540							